

Gravity measurement using polarization spectroscopy

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Abstract: We propose a new method to measure gravity using atoms as test masses. In this scheme, the laser fields will be directly measured via their polarization rotations through the free-fall atom cloud. We will show that, in the ideal situation, the new method is comparable in measurement sensitivity with the light-pulse atom interferometer method. The new method offers several possible advantages, though the feasibility of practical implementation needs investigation further.